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Teachers' Pedagogies and Strategies of Engagement

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Abstract

Engagement of students in their learning is a positive approach to enhance their educational experience. Engagement is, however, a broad term with a variety of meanings. When attempting to engage students in order to raise their academic attainment it is likely that teachers' beliefs about engagement will influence pedagogical practices. A review of 720 articles, published since 2000, found six kinds of engagement, with cognitive and emotional engagement being most strongly linked to academic attainment. The review found that studies often focused on older learners, while elementary students were under-represented. This prompted a mixed methods study involving interviews, an online survey of 600 teachers, and lesson observations exploring teachers' beliefs and practices regarding engagement, focusing on those teaching children of 8-11 years. The study identified five categories of teacher, each favouring a particular pedagogy of engagement. Many teachers also believed that no special effort to engage higher ability children is needed. Without recognition that all need to be supported to engage in their learning, some teachers risk failing to provide for more able students. We recommend that there should be theory-guided training to help teachers identify indicators of emotional and intellectual engagement, to help them vary their strategy, and which points to the need to consider all students, including those of high ability.

Keywords: Engagement in the elementary school; beliefs about engagement; engagement practices; ability; creativity.

Introduction

Student engagement generally refers to the extent to which students join in their education, mentally and physically (Axelson & Flick, 2011). It seems self-evident that engagement can produce desirable changes in learning and attainment. Its counterpart, disengagement, not only fails to produce such changes, but can lead to undesirable behaviours. Accordingly, engagement in the classroom is seen as something to be assisted. Recently, there has been significant interest in student engagement, insofar as this is indicated by the number of articles about it in the last decade. Most interest is directed at the older student; much less is on primary/elementary school children. The object of study varies from a macroscopic engagement in school more broadly to a more microscopic engagement in particular activities in a learning event. The context also varies. For instance, it might be a formal lesson in a classroom, or instruction delivered online (Beer, Clark & Jones, 2010). The multifaceted nature of engagement has been noted by, for example, Jimerson, Campos and Greif (2003), and our inspection of some 720 recent articles, published since 2000, illustrated the manifold nature of the notion of engagement. It can relate to the intellectual, physical, cultural, behavioural, emotional and social aspects of education (Table 1). There are also various combinations of these (Davies, 2018). Social and emotional engagement accounted for most interest, closely followed by intellectual engagement. Kandel (2006) argued that constructing understandings needs a lot of mental concentration, which is helped by strong intellectual or emotional engagement. Interest in engagement in certain curriculum areas also varies. For instance, a popular area is engagement in learning science. Engagement in other areas, such as literacy and mathematics, has consistently attracted much less attention.

Here, we take engagement to be an act or state of involvement in an activity (mental or physical), which can vary in intensity from negligible involvement to engrossed flow (Csikszentmihalyi, 1992). The more absorbing states have more potential to support classroom learning and attainment (e.g., Axelson & Flick, 2011; Beer, Clark & Jones, 2010). A willing engagement is commonly assumed to be better than coerced engagement, as it is more likely to be

more engrossing. At the same time, working with willing participants can be less stressful for teachers. For such reasons, teachers may use practices, approaches and strategies they believe will attract students and induce their willing engagement. These could come from, for instance, their training, other teachers, trial and error, experience (both of students and as students themselves), and teaching resources. Their beliefs, conscious and unconscious, could amount to a coherent theory of engagement, or a more limited and fragmented understanding of what engages students. Such beliefs underpin personal pedagogies of engagement (Mestre, 2005). For example, a pedagogy could be based on a belief that learners are inherently reluctant to engage, and have to be coerced by unpleasant consequences for not engaging.

More formal theories of cognitive and emotional engagement focus on psychological need satisfaction (e.g., Ryan & Deci, 2000) and goal achievement (e.g., Anderman & Patrick, 2012), with some overlap when the goal is to satisfy a need. For practical purposes, these can be subsumed under an umbrella notion of personal relevance theory (Newton, 1988). In this, motivation to engage stems from the perceived relevance of an act (mental or physical) to satisfy some personal need or advance a goal. There may be a need, for instance, for novelty, competence, an understanding of the self, affiliation, autonomy, or to promote some long-term aspiration. An action which appears to offer one or more of these tends to attract a willing engagement from predisposed students. For example, opportunities to be creative can offer some autonomy, and so can be engaging (Cremin et al., 2006). Motivation and engagement, however, are not synonymous: engagement is the act and state of involvement, motivation is the stimulus for that involvement. Some educators may not distinguish between motivation and engagement, but there can be practical value in separating antecedents and their consequences (Reschly & Christenson, 2012).

Table 1: Categories of engagements: descriptors & definitions.

Category of engagement	Description:	Example from the research literature:
Intellectual	Intellectual engagement is sometimes also referred to as 'cognitive' or 'academic' engagement, related to a student's absorption with intellectual tasks.	'A serious emotional and cognitive investment in learning, using higher order thinking skills (such as analysis and evaluation) to increase understanding, solve complex problems, or construct new knowledge' (Willms, Friesen and Milton, 2009, p.6)
Physical	Physical engagement has been described in terms of a student's active physical participation in lessons due to the teacher planning activities which involve motion or engagement in physical activities.	This can be a student's participation in 'hands on activities with physical movement' (Wiesner-Groff, 2012) or defined as a student's engagement in Physical Education lessons where, 'engaged students persist in active and effortful attempts to master the knowledge and skills they encounter and exhibit a preference for and enjoyment of physical activity' (Bevans et al., 2010).
Cultural	Cultural engagement is often defined as whether students of all cultures feel accepted and welcomed in the learning environment (Hess, Lanig & Vaughan, 2007).	Harper and Quaye (2009) argue that cultural engagement involves both students and the educational institution, 'students should not be chiefly responsible for engaging themselves ... but instead administrators and educators must foster the conditions that enable diverse populations of students to be engaged (Harper & Quaye, 2009, cited in Trowler, V., 2010 p. 5)
Behavioural	Behavioural engagement has been defined as: a. participation in school-centred activities, such as extracurricular activities (e.g., Fullarton, 2002);	Fredricks et al. (2004, p.62) noted that, 'In general, these definitions do not make distinctions among various types of behaviour, such as participation in academic and non-academic school activities'.

	b. school attendance (e.g Willms, 2003); c. involvement in learning and academic tasks (e.g., Fredricks et al., 2004).	
Emotional	Emotional engagement related to how a student feels during a particular activity, lesson or more generally with their education as a whole.	This has been described as a student's 'emotional response characterized by feelings of involvement in school as a place and a [provider] of activities worth pursuing' (e.g., Finn & Zimmer, 2012 p. 103).
Social	Social Engagement can be defined as the extent to which a student follows written and unwritten rules of behaviour, for example, coming to class on time, interacting appropriately with teachers and peers, and not exhibiting anti-social behaviours, such as withdrawing from participation in learning activities or disrupting the work of other students (Finn & Zimmer, 2012).	Positive social engagement relates to relationships and interactions; 'relations represent more of a quality of attachment, inclusion, integration, unity, connectedness, or empowerment' (Lamborn et al., 1992. p.16). Social engagement is often described as the opposite of disengagement, and shapes most of the literature relating to this category of engagement.

As less attention has been given to engaging younger children in classroom learning, we were curious about their teachers' notions of engagement, with a view to informing our understanding of these teachers' pedagogies of engagement, and how they relate to their students' abilities. To that end, three studies were carried out, each informing the next. We describe each in turn, and then discuss them together.

Study 1: Eliciting some teachers' notions of engagement

Method

Marton's phenomenographic method for eliciting people's conceptions and beliefs about some aspect the world was used (Marton, 1981; Larsson & Holstrom, 2007). This involves interviewing between twelve and twenty participants. Here, 16 teachers were interviewed (individually, face-to-face, 5 male and 11 female, reflecting the gender balance in the elementary school). These varied in age from 25 to 58 years, and all taught children aged between 8 and 11 years. They were asked open-ended questions about classroom engagement in learning. For example:

- I'm interested in student engagement. What does it mean to you?
- What engages students?
- Can you give me an example of a lesson or activity when the class has been engaged?
- How do you know they are engaged?
- Does engagement 'look different' in mathematics, English, and science lessons?
- In your experience, do children have to be engaged to learn?

Responses could be explored further to clarify and delineate meaning (Punch & Oancea, 2015). The interviews lasted about 30 minutes. Notes were taken and transcribed to provide a data pool of 'utterances'. The data pool was sorted into groups or (to use Marton's term) 'categories of description' representing dissimilar notions of what engages children in learning in the classroom. As the sort progressed, new groups evolved, and earlier groups were re-sorted to produce self-consistent categories. Each group was given a descriptive label, its attributes listed, and the group exemplified to form a category of description. Each category describes a conception or notion of engagement.

A study of this kind is intended to collect notions of a construct, but it can never be said with certainty that all notions have been found. The appearance of new categories tends to decline as the number of participants increases, but it is always possible that additional participants might add another category. At the same time, the prevalence of a particular notion amongst teachers in general may not be the same as its prevalence in the sample interviewed. Nevertheless, the collection of categories can usefully inform discussion about teachers' beliefs, and also prepare the way for the next stage of the study.

Results

Five groups of teachers' conceptions of engagement evolved from the iterative sort of the data pool. They are listed in Table 2.

Table 2: Categories of teachers' conceptions of engagement.

Category:	Description:	Example from data pool
1. Fun and exciting	Teachers in this category claimed to use fun and exciting lessons to engage their pupils.	Teachers in this category talked of using 'fun (approaches) so the children's imagination runs wild', and mainly saw the onus of responsibility for engagement as being on the teacher, e.g., 'You have to work hard to think of fun activities for them to do or there's no point'.
2. Problem solving	Teachers in this category claimed to use 'problem solving' activities to engage children.	These teachers described how lessons involving 'problem solving' induced the most engagement: 'I start with a problem or misconception and they have to try to unpick it'. There was a general feeling that children were engaged when activities were challenging, e.g.,: 'Problems that stretch them engage them'.
3. Using rewards	These teachers claimed to engage children through the use of rewards.	Teachers spoke of how rewards induced children to engage in learning: 'With the super star award-reward system they all seem to be fairly motivated'. These teachers talked of how children were motivated to engage due to the particular reward system they used, e.g.,: 'they're desperate to be at the top of the leader board so they will stay on task and get it done'.
4. Practical, hands-on activity	Teachers in this category claimed to engage children through practical or 'hands-on' activities.	Teachers seemed confident that this approach engaged the whole class: 'anything that is practical and hands-on they are more likely to take an interest in', and 'anything that's got practical things [engages]'. These teachers felt practical activities were more interesting and interactive, e.g.,: 'More hands-on activities, especially with very young children, they need something sensory or you can talk at them all you want but they will be less engaged'.
5. Independent or child-led activities or topics	These teachers described lessons where the children worked in self-directed ways and with minimal support from the teachers as being the most engaging.	One teacher recounted an activity where, 'the children were really independent and focused on their design', and talked of how a lesson had to be, 'something they were interested in' in order to be fully engaged. Choice regarding the activity or topic was felt to boost engagement, e.g.,: 'If they pick their own topic, it motivates even the ones that are less motivated'.

All these teachers implicitly or explicitly acknowledged the needs of the learners, yet there are variations in their responses in terms of where and with whom the onus of responsibility lay in meeting these needs. Some teachers appeared to focus more on cognitive needs, while others spoke more about emotional needs. Comments regarding cognitive engagement could be grouped into two broad categories, reflecting the importance of:

1. An appropriate level of challenge for all children; and,
2. The ability of topics/activities to stimulate further enquiry.

Regarding emotional engagement, teachers' comments formed three categories reflecting the perceived importance of:

1. The general emotional wellbeing of children as influenced by home life;
2. Transient emotions of the children influenced by physical factors, such as hunger, illness and fatigue; and,
3. Transient emotions of the children triggered by events in school.

Responses to: ‘Do children have to be engaged to attain?’ revealed that a significant proportion of teachers felt that highly able students did not need to be fully engaged in order to learn. Responses included:

- ‘Yes I think so. Only the very bright children seem to be able to pull it out of the bag and do well when they haven’t really totally engaged, but I think they can only do that for so long, so even if they can do it in my class it would be rare for them to do really well ... without fully engaging in the lessons’.
- ‘No. If they are really capable ... some can be disengaged but have enough fluency to just pick it up when they need to.’
- ‘95% of the time, the exceptions are the ones who are super high ability and regardless of what happens in the classrooms they’ll do it, they know it already’.

Study 2: A broad survey of teachers’ notions of engagement

Method

The first study identified some notions of engagement, but did not indicate their prevalence amongst teachers more generally. They were used to construct a questionnaire aimed at gauging their prevalence, and at relating the notions to personal attributes and circumstances. This questionnaire was presented online throughout England to teachers like those interviewed in Study 1 using Google’s Survey Monkey. As well as being available to teachers independently, it was posted on various teacher group sites on Facebook (these groups being aimed at teachers of children between 8 and 11 years in England), and was open for seven days and terminated when 600 teachers had responded. Online surveys can supply a large number of respondents, but can risk inappropriate participation. We found no indication of this. Seventy-eight left their details to be considered for the next stage of the study. Survey Monkey provides some descriptive statistics, but we also looked for patterns in the data.

Results

The survey found that the teachers were distributed amongst the five categories as in Figure 1. An open question was available for teachers to respond to: *Do you have any other comments on your views about pupil engagement?* Fifteen of the 600 respondents left a comment, but none suggested other categories, and only five comments, less than 1%, could be taken to imply that strategies might vary with context. Clearly, the most common was the first category, *Fun/Exciting*, while the least was associated with using *Rewards* to attract engagement.

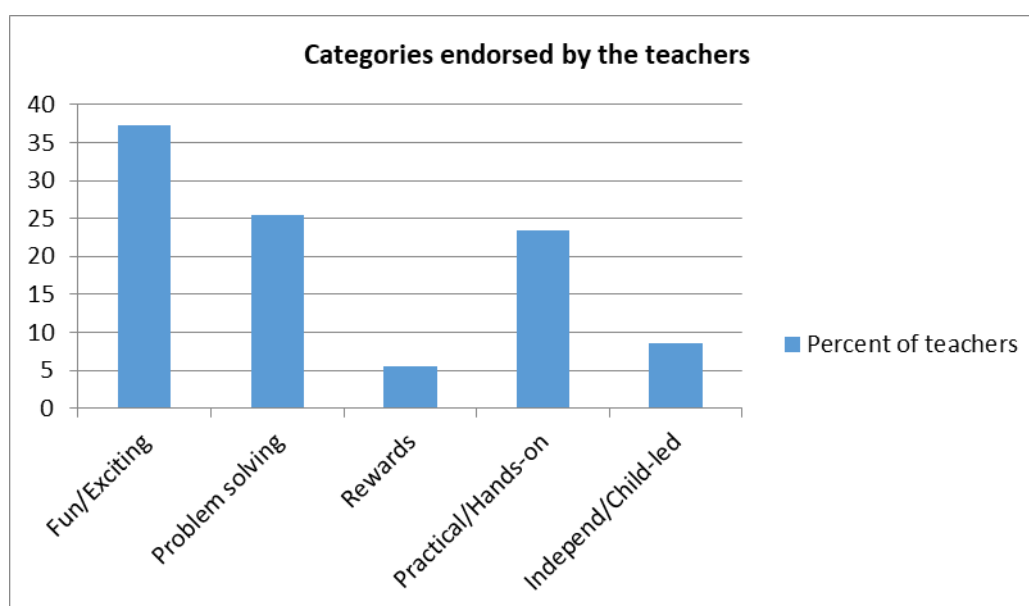


Figure 1: Engagement categories endorsed by the teachers.

Most teachers felt their knowledge of engagement originated from their ‘on the job’ experience. However, the survey indicated that their preferred category depended on both job satisfaction and teaching experience. For example, Rewards teachers were characterised by lower levels of teaching experience and job satisfaction (71% having taught for ten years or less, compared with the overall average of 58%, and 26% expressing low job satisfaction compared with 17 % overall). Teachers in all categories were generally of the view that the teacher’s demeanour was relevant, often seeing ‘seriousness’ as not being conducive to children’s engagement in learning. They also tended to agree that children have to be engaged to achieve, but felt that this was less so for high ability children (see Table 3). The survey data, however, indicated some bi-polarisation of views: while the majority agreed with the statement, a significant minority did not. This was particularly noticeable with Types 1, 3 and 4 teachers, many of whom presumably saw generating engagement via fun/excitement, rewards, and hands-on activity as unnecessary stimuli for those of high ability. On the other hand, Types 2 and 5 teachers, favouring problem solving and independent activity, were more in agreement about the need for engagement, regardless of ability³. The latter approaches, of course, depend on the intrinsic attributes of the learning activity to prompt engagement, while the former approaches largely rely on the attachment of external attributes.

Table 3: Relationship between engagement and attainment: Teacher Type 1 = Fun/Exciting; Type 2 = Problem solving; Type 3 = Rewards; Type 4 = Practical/Hands-on; Type 5 = Independent/Child-led. The higher the mean score, the more the teachers agreed with the statement (on a scale of 1-5).

Teacher Type	1	2	3	4	5
Statement	Children have to be engaged to achieve				
Mean score	3.93	3.83	3.88	3.71	3.62
Statement	Higher ability children have to be engaged to achieve				
Mean score	3.34	3.54	3.43	3.28	3.55

Study 3: Engagement in practice

Broadly speaking, teachers’ beliefs influence how they teach (see e.g., Richardson et al., 1991; Stipek et al., 2001), but they must also respond to the expectations of school managers and parents, and are constrained by for, instance, resources. As far as the planning and delivery of a lesson is concerned in the UK, the content is generally prescribed, but there is some freedom in how it is taught⁴. Given that student engagement is commonly seen as promoting learning and attainment, teachers’ beliefs about it could be reflected in their practices. We felt it would be worthwhile to observe lessons of a sample of teachers who had volunteered in the online survey for further involvement. The aim was to judge the extent to which these teachers taught in ways that reflected their beliefs about engagement.

Method

English and mathematics are ‘core’ subjects in the English National Curriculum for young children. One teacher for each category of beliefs, from diverse locations in England, was observed teaching an English and a mathematics lesson to children in the age range 8 to 10 years. Observations took place during mornings as English and mathematics are generally taught then. Notes were taken and lessons were recorded on an iPad™ using the application, VEO™ (Video Enhanced Observation), which enabled events to be studied later. Observation of student-student and student-teacher interaction was from the back of the room to reduce the likelihood that observer activity would distract the children (see Reiss, 2000).

³ The frequency patterns of responses of Types 1, 3, and 4 teachers and those of Types 2 and 5 teachers were, in statistical terms, significantly different ($p < 0.01$, χ^2 test).

⁴ Freedom is not always complete. For instance, in England, a government education inspection agency may expect to see reading taught with an emphasis on phonics, and mathematics taught with an emphasis on ‘mastery’. Such expectations tend to change over time.

Judgments of the children's engagement in learning were facilitated by a schedule of ten indicators, five for students' emotional engagement and five for their intellectual engagement:

Emotional engagement

1. They enjoyed today's lesson
2. They respected the teacher
3. They worked well with peers
4. They found the lesson exciting
5. The interaction between the teacher and child was positive

Intellectual engagement

6. They asked relevant questions
7. They found the lesson interesting
8. They checked their work for mistakes
9. They achieved the learning objective
10. They tried their hardest (within the context of the lesson)

These indicators were adapted from a variety of established engagement measures (Fredricks & McColskey, 2012). Each was rated on a Likert scale of 1-5 by the observer (one of the authors). This 1-5 scale acknowledges that engagement can occur at different levels and is not simply present or absent. Twelve children were selected for observation by each teacher. They comprised four the teacher judged as, 'less academically able', four as 'average', and four as 'highly able'. Two boys and two girls were in each ability group.

The reliability of an observational tool is often described as its ability to be used by different observers, and yield similar results (e.g., Coolican, 2004). Therefore, one of the teachers was simultaneously observed by a teacher with over 20 years experience teaching similar children. The reliability coefficient (indicating the level of agreement between the two observers) was 0.86 which is generally considered to be satisfactory (Coolican, 2004). Validity can be defined as an instrument's ability to measure what it is intended to measure (Coolican, 2004). The indicators used here had already been robustly tested for their validity (Fredricks & McColskey, 2012). Nevertheless, the samples are small, and the lessons, teachers and schools are different, so caution is needed when interpreting the results.

Results

Brief outlines of the lessons follow, with a comment on the children's engagement.

Category 1: Fun and exciting

The English lesson had children consider persuasive forms of writing to produce an advertising poster for an object likely to attract children's interest. The mathematics lesson had groups of children explore multiplication using a game-like activity.

The emotional engagement was one of fun and excitement in both lessons (both scoring 4.6 out of 5, on average). For example, 'They enjoyed today's lesson', and, 'They found the lesson exciting', were scored at 4.8 and 4.0, respectively. The intellectual engagement was rated as 4.0 and 3.9 for the English and mathematics lessons, respectively.

Category 2: Problem Solving

In the English lesson, groups of children were set the task of creating and performing a dramatic scene about street life during the Great Fire of London, some four centuries ago. In the mathematics lesson, pairs of children had the task of showing how multiplication algorithms function.

Both lessons involved problem solving in that the children had to find their own ways of doing the tasks and finding their own solutions. The emotional engagement (4.6 and 4.5, on average) was similar in both lessons, while the intellectual engagement was, on average, 3.9 (English) and 4.3 (mathematics).

Category 3: Rewards System

The English lesson used a story board activity in which children wrote sentences with adjectives under pictures. The mathematics lesson had individual children plot points on a grid to reveal a shape. The teacher referred to the reward system regularly throughout the lessons. Rewards (stickers attached to a display board) were given to those who remained on track.

The average emotional engagement was rated as 3.8 (English) and 4.2 (mathematics). The average intellectual engagement was rated as 3.5 (English) and 3.9 (mathematics). Interestingly, the higher ability children did not ask for stickers, but the lower ability children often did so, and they clearly valued the rewards and engaged with the task in order to obtain them. For the higher ability children, 'They found the lesson interesting', was rated much lower than for the other children (e.g., English, higher ability: 3.4; others: 4.3). They were, however, quietly compliant, and the teacher could safely give them less attention than the rest of the class.

Category 4: Practical, hands-on

Offering some form of hands-on activity was a key strategy of this teacher. The English lesson had a starter activity using Kung Fu Punctuation in which children use martial arts-inspired movements. In the mathematics lesson, children explored the notion of symmetry by making shapes with their bodies to be photographed by a partner. Lines of symmetry were then drawn on the photographs.

On average, engagement levels were rated as: emotional, 4.3 (English) and 4.5 (mathematics); intellectual, 3.9 (English) and 4.0 (mathematics). There were times when the higher ability group seemed to be bored and inclined to find interest off-task. (Hands-on or practical activities were also used by other teachers, but they were incidental to the approach, not central to it.)

Category 5: Independent, child-led

The English lesson provided an opportunity for independent, child-led activity. The children researched an author of their choice in order to produce a biography. In the mathematics lesson, the children practised adding fractions. Both offered some autonomy in ways of working.

Engagement levels were rated as: emotional, 4.3 (English) and 4.5 (mathematics); intellectual, 4.2 (English) and 4.7 (mathematics). Generally, higher ability children responded well to this approach with uniform scores of 5.0.

Discussion

We cannot say that we have identified all the notions of engagement in learning that teachers have, but the phenomenographic study gave a picture of at least some of them, and the survey pointed to their prevalence. An online survey, however, is only open to those who are digital-media competent, and who take part in surveys, but the background data did suggest that the sample of teachers was diverse. The lessons observed, although few, did show that the teachers' conceptions of engagement were not detached from action, but were reflected in their practices. There may, however, be teachers who have multiple notions of engagement. There were only slight indications of this; less than 1% indicated that strategies might change with context: one of these wrote that, 'it depends on the cohort', and two pointed out that children vary in how they respond to a strategy. When there is a strategy, we are likely to have detected the predominant one the teacher tends to use, at least when teaching English and mathematics. With these limitations in mind, we offer some thoughts on the findings, and, drawing on Bassey's (2001) notion of relatability, suggest that teachers and teacher trainers will be able to relate them to their own experience.

Pedagogies of engagement

We have distinguished between notions of engagement, and ways of inducing it. These teachers tended to reveal the former through the latter. Here, engagement generally referred to children's behaviour that was on-task in such a way that it enabled mental resources to be committed

to learning. It was noted that some teachers may not distinguish sharply between antecedents (motivation) and consequences (engagement), perhaps reflected in the views of those who believe engagement is not necessary for achievement. How they thought engagement might be achieved varied. We identified five beliefs, which are, in order of prevalence:

1. Generating fun and excitement;
2. Challenging children with problems;
3. Providing practical activity and hands-on experience;
4. Providing autonomy; and,
5. Rewarding engagement.

Importantly, the observations of teachers' lessons, although small in number, showed that these beliefs can be reflected in practice – that is, they can be seen as pedagogies of engagement. But, are these pedagogies well-founded?

Each of the pedagogies could be seen as guiding teachers in making activities relevant to children's needs and goals. *Fun and excitement*, for instance, offers pleasurable mental stimulation; successful *problem solving* offers the satisfaction of competence; *hands-on experience* may satisfy a need for novel, direct experience of the world, or for competence in it (Piaget & Inhelder, 1973); *child-led* action offers satisfaction of the need for self-determination (Ryan & Deci, 2000); and *rewards* could satisfy a need for achievement, or enhance self and public images. To the extent that a given child sees these as personally relevant (and that is not always the case, as when the able children were not interested in collecting rewards), an activity adjusted accordingly could motivate engagement. The observations suggest that these pedagogies can be effective, but more for some children than others. At the same time, some areas of the curriculum and some kinds of learning may not lend themselves readily to these strategies. For instance, hands-on experience is not always feasible, and generating excitement can hinder analytical thought (Newton, 2014). It might also be argued that an over-reliance on material or token rewards risks encouraging inclinations that are activated only by extrinsic stimuli. A lack of variety in approach may also lead to satiation and boredom, and misses the opportunity to engage more children more of the time. Providing some autonomy in learning, however, can satisfy a fairly wide range of needs and goals, but less than 10% of the teachers in the survey favoured it. Where the curriculum is tightly prescribed, teachers may be less likely to use such an approach. Particular pedagogies (1, 3, and 5) tended to include a belief that high ability students did not need to be 'engaged' in order to achieve. It was particularly evident in the 'rewarding engagement' pedagogy where the strategy was less attractive to such children. Oakley *et al.* (2002) pointed out that such learners can be quietly disengaged and in need of mental stimulation. Two-thirds of the teachers in the survey believed that their beliefs came from 'on-the-job experience' (which may include personal experience as a student). This could explain the narrow preferences: a more or less successful approach has evolved from experience, and the teacher continually applies it. But learners are different, and while there may be some generalities, there is a need to allow for that variety.

Astin (1984, p. 519) argues that 'the quantity and quality of physical and psychological energy that students invest' produces learning in direct proportion to that involvement. In short, engagement is central to learning and achievement. The lesson observations, however, suggested that popular strategies can induce greater emotional engagement than intellectual engagement. (In the extreme, children may have fun yet learn little.) The optimum balance is unclear, but teachers need to be aware of the distinction. Only about 10% of the teachers in the survey thought that their knowledge of engagement came from teacher training, and only 4% thought it came from on-the-job training. Usefully, there is evidence, although indirect, that teachers' engagement strategies can be enhanced through training (e.g., Devlin, 2005). There is clearly a need for programmes which include this crucial aspect of a teacher's work. We suggest that these focus on:

1. What engagement and associated terms, like motivation, pedagogy of engagement, emotional and intellectual engagement, mean.
2. What can attract engagement in learning; personal relevance, need satisfaction and goal achievement, creative activity, and the role of teacher enthusiasm.

3. A recognition that perceived relevance can change with student, age, ability, and curriculum context, and that these need to be allowed for.
4. A range of strategies that exploit these attractions, and an avoidance of over-use of any one.
5. Understanding that some pedagogies are extrinsic (i.e. the attraction is attached to the topic, e.g., 'Fun', 'Rewards'); others are intrinsic (i.e., the attraction is within the approach, e.g., 'Problem-solving', 'Practical/hands-on', 'Independent' activity), and that they are not mutually exclusive.
6. Practice in selecting, developing, differentiating and applying strategies aimed at inducing engagement.

Conclusion

Engagement in education is seen as central to success, but the concept is a complex one. As far as engagement in the elementary classroom is concerned, teachers vary in what they believe will induce it, but each has a preferred strategy. This varies from formulating a potentially mundane activity in a way that makes it fun, offers activity and direct experience, or a challenge, to allowing some autonomy. Each of these can offer the student some satisfaction of a psychological need. There seems to be a tendency to rely on one need, ignoring individual differences in students and the likelihood of need satiation and consequent boredom. An important instance of this is the response of children of different abilities to a strategy. Those of high ability, for example, are at risk of neglect, and fail to engage in learning in ways that recognise their ability and maximise their learning.

These teachers claimed that their notions of engagement came largely from experience, and not training. We recommend that teacher trainers give the matter their attention, developing notions of engagement in learning, of sources of motivation, and of strategies for inducing engagement in diverse groups of students. One of the more effective approaches observed was to give children some autonomy in learning, and therein lies the potential for encompassing creative activities which need and reward it.

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